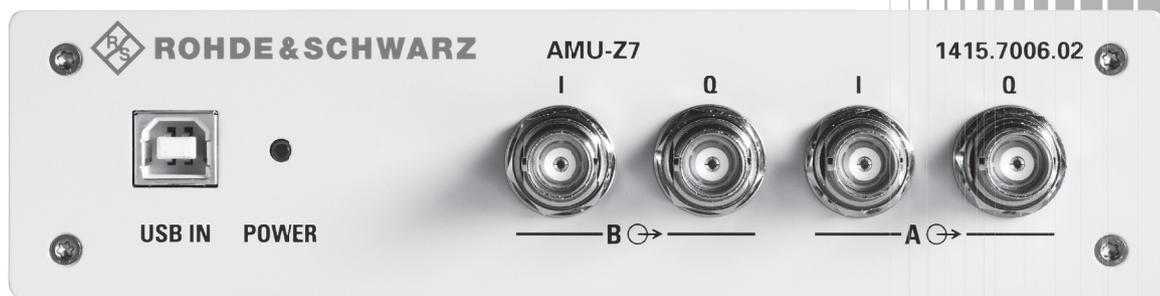


R&S® AMU-Z7

Analog I/Q Combiner

Specifications



75 Years of
Driving
Innovation


ROHDE & SCHWARZ

Specifications

Definitions

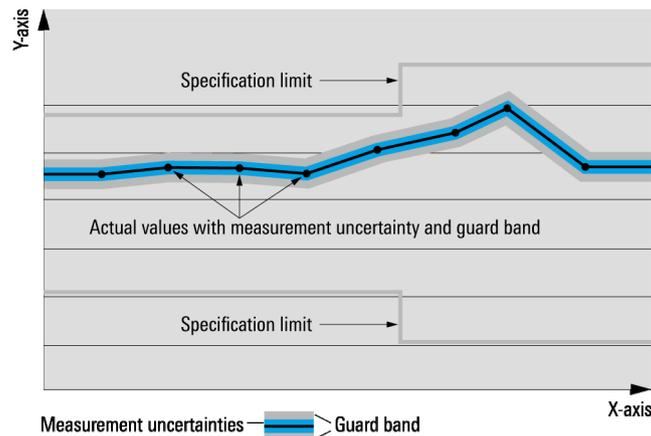
General

Product data applies under the following conditions:

- Three hours storage at ambient temperature followed by 30 minutes warm-up operation
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

Specifications with limits

Represent a range of values describing warranted product performance for the specified parameters, including measurement uncertainties and guard bands, if applicable. These specifications are marked with limiting symbols such as $<$, \leq , $>$, \geq , \pm , or descriptions such as maximum, limit of, minimum.



Specifications with limits.

Specifications without limits

Represent values describing warranted product performance for the specified parameters. These specifications are not specially marked.

Typical values [typ.]

Typical values are determined on the basis of a statistical evaluation of measured values obtained during ongoing series production of the instrument. When marked with $<$, $>$ or as a range, the typical value represents a statistical performance met by 80 % of the instruments at production time. Otherwise it represents the average value. Typical values do not include measurement uncertainties.

Nominal values [nominal]

Values determined by design but not tested during production.

Measured [measured]

Values measured on representative instruments but not individually tested during production.

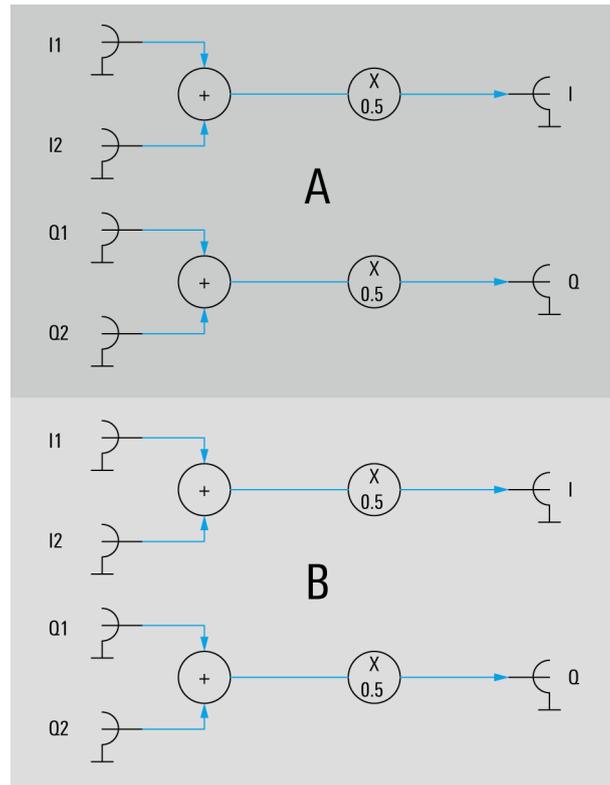
Uncertainties

Uncertainties define the expected range of values. They are calculated on the basis of the Guide to the Expression of Uncertainty in Measurement (GUM) and include the influence of the environmental conditions, aging and wear and tear. The stated values represent expanded uncertainties with a coverage factor of $k = 2$.

Typical, nominal and measured values are not warranted by Rohde & Schwarz.

Introduction

The R&S®AMU-Z7 analog I/Q combiner is a compact one-box solution for adding analog I/Q signals. It incorporates two analog I/Q combiners. In each combiner, two I/Q signals are added together to form just one I/Q signal. The R&S®AMU-Z7 is operated, for example, at the I/Q signal input of a Rohde & Schwarz signal generator to combine overlaid signals from different sources.



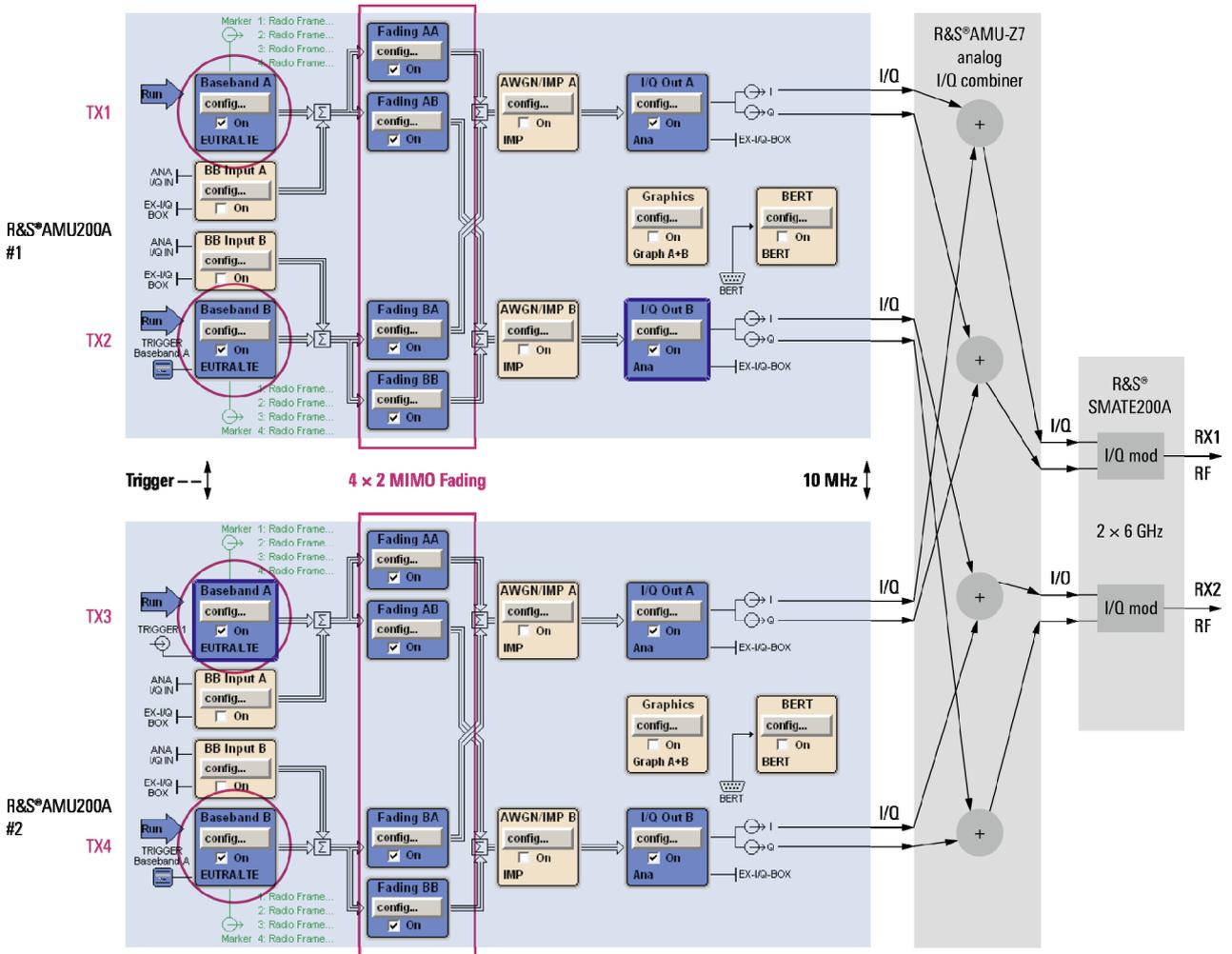
Block diagram of the R&S®AMU-Z7.

Key features

- Two analog I/Q combiners in one compact box
- 40 MHz bandwidth
- Equally weighted summing of I signals and Q signals respectively
- 6 dB insertion loss ensures that the maximum level of the sum signal at the output equals the level of the signals at the input
- Easy implementation of signal generation setups, where two I/Q signals need to be summed
- Straightforward 4x2 and 3x2 MIMO signal generation together with one R&S®SMATE200A and two R&S®AMU200A
- Powered via USB connector

Application example

The main application of the R&S®AMU-Z7 analog I/Q combiner is in a 4x2 or 3x2 MIMO signal generation setup (with fading simulation) as follows:



4x2 MIMO signal generation setup with one R&S® AMU-Z7, one R&S® SMATE200A and two R&S® AMU200A.

Note: The R&S® SMATE200A and R&S® AMU200A signal generators need to be equipped with the appropriate options.

Analog I/Q inputs and outputs

Input and output impedance		nominal 50 Ω
Input and output VSWR	up to 40 MHz	nominal < 1.2
Input and output voltage	V_P	nominal 0.5 V
Gain	at $R_S, R_L = 50 \Omega$ input to output	nominal -6.02 dB
Gain error	at $R_S, R_L = 50 \Omega$ at 100 kHz	< 0.05 dB
Output offset voltage	at $R_S, R_L = 50 \Omega$	< 1.5 mV
Frequency response	at $R_S, R_L = 50 \Omega$ up to 10 MHz up to 40 MHz	typ. 0.3 dB typ. 1 dB

General data

Power supply	via USB cable	
	input voltage	nominal 5 V
	input current	nominal 0.4 A
EMC		in line with EMC directive of EU (2004/108/EC), applied standard: EN 61326 (immunity to industrial environment; class B emissions), EN 55011 (class B emissions)
Temperature loading	operating temperature range	+5 °C to +45 °C
	storage temperature range	–40 °C to +70 °C in line with EN 60068-2-1 and EN 60068-2-2
Damp heat		+40 °C at 95 % rel. humidity, in line with EN 60068-2-30
Mechanical resistance	vibration, sinusoidal	5 Hz to 150 Hz, max. 2 g at 55 Hz max. 0.5 g at 55 Hz to 150 Hz, in line with EN 60068-2-6
	vibration, random	10 Hz to 300 Hz, acceleration 1.2 g RMS in line with EN 60068-2-64
	shock	40 g shock spectrum in line with EN 60068-2-27, MIL-STD-810E

Ordering information

Designation	Type	Order No.
Analog I/Q Combiner (including USB cable and operating manual)	R&S® AMU-Z7	1415.7006.02

For AMU200A product brochure, see PD 5213.7954.12 and www.rohde-schwarz.com

Service you can rely on

- | Worldwide
- | Local and personalized
- | Customized and flexible
- | Uncompromising quality
- | Long-term dependability

About Rohde & Schwarz

Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment

- | Energy-efficient products
- | Continuous improvement in environmental sustainability
- | ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

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*0.14 €/min within German wireline network; rates may vary in other networks (wireline and mobile) and countries.